UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

3D SYSTEMS, INC.,

Plaintiff,

v.

ENVISIONTEC, INC., ENVISIONTEC, GmbH, and SIBCO, INC.,

Defendants.

Case No. 2:05-cv-74891

Hon. Avern Cohn
Magistrate Judge R. Steven Whalen

JURY DEMAND

Susan M. Kornfield (P41071) Alan N. Harris (P56324) BODMAN LLP PLLC 201 South Division Street Suite 400 Ann Arbor, MI 48104 Tel: 734-930-2488 Fax: 734-930-2494 *Attorneys for Plaintiff*	R. Terrance Rader (P28747) Kristin L. Murphy (P572840 RADER, FISHMAN & GRAUER PLLC 39533 Woodward Avenue Bloomfield Hills, MI 48304 Tel: 248-594-0600 Fax: 248-594-0610 Email: rtr@raderfishman.com *Attorneys for Defendants*

Defendants' Witness List

Pursuant to Paragraph 4 of the Amended Pretrial Order (DN178), Defendants submit its Witness List and Brief Summary of the Nature of Testimony. A Detailed Summary of Testimony relative to the Issues for Trial with Exhibits A and B is also being filed concurrently herewith.

Will Call Witnesses	Brief description of nature of testimony
Ali El-Siblani	Background of the three defendant companies and relationship with U.S. manufacture, use, sale and offers for sale of the accused Perfactory and Vanquish machines; construction, components and operation of the accused Perfactory and Vanquish machines, including, but not limited to, operation of the software of the devices, a description of the cooling blade, its normal operation and structure, a description of voxelization, and a description of the continuous moving build platform and volume compensator of the Vanquish. Mr. El-Siblani is also expected to testify

	concerning Abe Reichenthal's demands for a license to Envisiontec's Intellectual Property.
Alexander Shkolnik	Construction, components and operation of the accused Vanquish machine, including, but not limited to, operation of the software of the device, a description of the cooling blade, its normal operation and structure, a description of voxelization, and a description of the volume compensator and continuously moving build platform.
Dr. Sebastian Magda	Expert Opinions on the software of the accused Perfactory and Vanquish machines, including how the software interacts with the accused Perfactory and Vanquish machines.
Volker Schillen (by declaration and deposition video)	Construction, components, and operation of the accused Perfactory and Vanquish machines, including the operation of the software of the devices and a description of voxelization (as set forth in his previously filed declaration of July 29, 2008 declaration).
Dr. Paul Jacobs (by declaration)	Expert Opinion testimony concerning the operation of accused Perfactory and Vanquish machines as it relates to the claim limitations at issue (as set forth in his previously filed July 16, 2008 and December 18, 2008 declarations).

May Call Witnesses	**Brief description of nature of testimony**
Dr. Volker Schillen	To the extent that Dr. Schillen becomes available for trial, Defendants will present live testimony from Dr. Schillen as outlined above.
Rebuttal Witness	As Plaintiff's summary of the nature of the testimony is broadly phrased and lacking in any specific detail, Defendants expressly reserve the right to call additional witnesses in rebuttal to any specific testimony introduced by the Plaintiff at trial.

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3D SYSTEMS, INC., Plaintiff, v. ENVISIONTEC, INC., ENVISIONTEC GMBH, and SIBCO, INC., Defendants.	) Case No. 2:05-cv-74891) Hon. Avern Cohn) Magistrate Judge R. Steven Whalen

DEFENDANTS' WITNESS LIST AND SUMMARY OF TESTIMONY

Pursuant to Paragraph 4 of the Amended Pretrial Order (DN178), Defendants submits herewith their Witness List and Summary of Testimony relative the issues for trial. Also attached to this document as Exhibit A, is a List of Issues for Trial as set by the Court. Attached as Exhibit B is List of Issues Relative to Claim Limitations which Defendants Wish to Make a Separate Proffer at Trial related to non-infringement that Defendants contend should have been found as non-infringing by the Court and Special Master.

A. The Defendants Will Call the Following Witnesses At Trial:

1. Ali El-Siblani
CEO of Envisiontec GmbH, Envisiontec, Inc., and Sibco, Inc.
1100 Hilton Street
Ferndale, MI 48220

Summary of Mr. El-Siblani's testimony:

Mr. El-Siblani is expected to testify about his 15+ years of experience in the rapid prototyping industry and his educational background, which includes a bachelor's degree in Electrical Engineering from Lawrence Technological University and a Master's Degree in

Electrical Engineering and Computer Science from Wayne State University. Mr. El-Siblani will also offer testimony concerning the corporate history of the defendants, the nature of each company's business, and the history for of the accused products.

More specifically, Mr. El-Siblani is expected to testify about the device that the predecessor company of Envisiontec GmbH had, i.e., a non-functioning rapid prototyping device called "Perfactory," which was short for "Personal Factory," and his personal knowledge of how he, and other members of Envisiontec GmbH, modified the design of the machine in several respects, and eventually commercialized several devices sold under the name "Perfactory." Mr. El-Siblani is expected to testify concerning the various models of the Perfactory devices include Perfactory Standard, Perfactory SXGA+ Standard, Perfactory SXGA+ Standard UV System, Perfactory Mini Multi Lens, Perfactory^3 III UV, and the Perfactory XGA Desktop system, as well as his knowledge about the mechanical design of the Perfactory devices and about aspects of the software programs used by the devices.

Mr. El-Siblani is also expected to testify concerning the founding of Defendant Envisiontec, Inc. and its relationship with Envisiontec GmbH. More specifically, Mr. El-Siblani is expected to testify concerning Envisiontec, Inc's exclusive distributorship of the Envisiontec GmbH Perfactory devices in the United States.

Mr. El-Siblani is also expected to testify concerning defendants' Envisiontec, Inc.'s and Envisiontec GmbH's development of rapid prototyping devices sold under the name "Vanquish," including the Vanquish+ Perfactory^3 System and the Vanquish Flash Cure System (which were recently re-named "PerfactoryXtreme" and "PerfactoryXede)". Mr. El-Siblani is also expected to testify concerning Envisiontec, Inc.'s exclusive distributorship of the Vanquish devices in the United States.

Mr. El-Siblani is also expected to testify concerning the corporate history of Defendant Sibco, Inc., as well as describing the nature of Sibco's business. More specifically, Mr. El-Siblani is expected to testify concerning Sibco's supply of materials for rapid prototyping devices and repairing rapid prototyping devices. Mr. El-Siblani is expected to testify that Sibco does not make, use, sell, offer to sell, or import either the Vanquish or the Perfactory devices.

Mr. El-Siblani is also expected to testify concerning the operation of the Perfactory and Vanquish devices. More specifically, Mr. El-Siblani is expected to testify concerning how the Perfactory and Vanquish devices create a solid model of an object based on files called "STL files" as opposed to computer aided design ("CAD") files. Mr. El-Siblani is also expected to testify that the Perfactory and Vanquish devices create a model using a photopolymer (or curable resin), which is a viscous liquid material that solidifies when light is applied to it. Mr. El-Siblani is expected to testify concerning how liquid material contains chains of smaller molecules called "monomers" which polymerize to form long chains and/or form bonds between chains ("cross linking") in response to light.

Mr. El-Siblani is also expected to testify concerning the components of the Perfactory machine, i.e., that it has a cabinet in which a digital light projector, DLP, is housed and that a glass plate sits on top of the cabinet and is arranged so that light from the DLP is projected through it. Mr. El-Siblani is expected to testify that a polymerization tray sits on top of the glass plate and holds a quantity of the curable resin. Mr. El-Siblani is also expected to testify that the bottom surface of the tray is a window which comes into contact with solidified resin during the process of building a part. Mr. El-Siblani is also expected to testify that a build platform is movably mounted on a vertical shaft that is attached to the top of the cabinet and that during the build process the part is built upside down, and the build platform moves progressively upward

and away from the polymer tray or basement.

Mr. El-Siblani is also expected to testify that with the exception of the Perfactory Desktop machine, each of the Perfactory machines includes a motorized basement tilting mechanism and that before the DLP applies light to the underside of the uncured resin, the tilting mechanism tilts the basement to release the recently cured resin from the basement window, and also allows resin to flow and eliminate any trapped bubbles. Mr. El-Siblani is also expected to testify that the build platform is then moved upward allowing fresh resin in the tray or basement to flow beneath the previously solidified voxels and that the tilting mechanism is then moved back to its original position before the DLP applies light to the uncured resin again. Mr. El-Siblani is also expected to testify that the process is then repeated and that a fill control system monitors the level of uncured resin in the polymerization basement and pumps fresh resin into the basement if the resin drops below a predetermined level.

Mr. El-Siblani is also expected to testify that each one of the Vanquish machines includes a frame that houses a resin tank, a build platform, a digital light projector (DLP), and a pre-processing computer. Mr. El-Siblani is also expected to testify that the build platform of the Vanquish devices is mounted on a vertical support and moves continuously downward during the build process without stopping. Mr. El-Siblani is also expected to testify that as the Vanquish build platform moves downward, the previously cured resin also moves downward allowing uncured resin to flow over it. Mr. El-Siblani is also expected to testify that a cooling blade, which is spaced from the upper surface of the resin by a predetermined gap, traverses across the upper surface of the resin because of the large amount of heat that is generated.

Mr. El-Siblani is also expected to testify that the Perfactory and Vanquish devices use software which is called the Perfactory Software Suite. Mr. El-Siblani is also expected to testify

that the Perfactory Software Suite receives STL files as its input and that customers must obtain different software from other companies to generate a STL file form a CAD file. Mr. El-Siblani is further expected to testify that the STL file is only an approximation of the information of the CAD data. Mr. El-Siblani is also expected to testify that since every CAD software has its own format, there must be a STL translator specific to each type of CAD software which is capable of reading the CAD data and translating it to a STL file. Mr. El-Siblani is also expected to testify that it is not possible to go back from a STL file to a CAD file if you wish to make accurate changes to the original design. Mr. El-Siblani is also expected to testify that after translation to the STL information, the STL file is then converted into a three-dimensional build envelope with individual voxel volumes before the information is transmitted for the purpose of building a part. Mr. El-Siblani is also expected to testify that a difference between the Perfactory/Vanquish software and the information disclosed in the patents in suit is the Perfactory/Vanquish software cannot generate a STL file from a CAD model. Mr. El-Siblani is also expected to testify that a CAD file is not a STL file and a translation of a CAD file is not equivalent to the original CAD model.

Mr. El-Siblani is also expected to testify that the voxel matrix used in the Perfactory and Vanquish devices results from providing a three-dimensional build envelope or volume and subdividing the build volume into volume elements which are called voxels. Mr. El-Siblani is also expected to testify that a determination is made as to whether there is an intersection between each voxel and the three-dimensional part to be manufactured and depending on the intersection amount, if any, a brightness intensity value is assigned to each voxel volume which is unique for each voxel and independent of any other voxel. Mr. El-Siblani is also expected to testify that the brightness intensity values or grayscale values are used to generate a voxel matrix

or a volumetric model for the entire build volume of the part (or solid model) to be manufactured before any exposure takes place.

Mr. El-Siblani is also expected to testify that each voxel is a defined data point having its own unique x, y, and z coordinates; that is, each voxel (data point representation, also defined as a volumetric element), is three-dimensional rather than two-dimensional.

Mr. El-Siblani is also expected to testify that the exposure for each data point is based upon the grayscale value that is assigned to each voxel and the total exposure time. Mr. El-Siblani is also expected to testify that each individual mirror on the DLP projector is activated depending on the grayscale value assigned to the corresponding voxel and that the time of data delivery is different for each mirror because each mirror has to be addressed with an individual grayscale value and the addressing of the individual data point representations does not take place simultaneously.

Mr. El-Siblani is expected to testify that if the individual mirror has a grayscale value of 255, it is on and if the individual mirror receives a grayscale value of 0, it is off. Mr. El-Siblani is expected to testify that if, on the other hand, the grayscale value is between 0 and 255, the individual mirror vibrates. Mr. El-Siblani is expected to testify, as an example, that for a grayscale value of 128, the individual mirror vibrates such that fifty percent of the time it is in the on position and fifty percent of the time it is in the off position. As set forth in paragraph 31 of his December 18, 2008 declaration, Mr. El-Siblani is also expected to testify that the digital mirrors tilt to the "on" or "off" position, or they pulsate at different frequencies to provide a gray scale value from 0-255 based on the bitmap data; that the use of "gray scaling" causes different locations across the liquid to polymerize/cure to different depths; and instead of slicing part model data into cross-sections, part is progressively built from bitmap data.

Mr. El-Siblani is also expected to testify that during the build process, each time the DLP projects light to the resin it causes the resin to solidify at specific voxel location. Mr. El-Siblani is expected to testify that the grayscale voxel intensities are three-dimensional data points that are converted into bitmaps and then sent from the bitmaps to the DLP mirrors on an individual voxel data point basis. Mr. El-Siblani is expected to testify that in the Perfactory and Vanquish machines there are 1400 x 1050 individual addressable independent data points. Mr. El-Siblani is expected to testify that unlike the two-dimensional stereolithography methodology that is described in the patents at issue, the individual data point information is not provided to the individual mirrors on the DLP projector as a layer nor does the information represent adjacent layers. Mr. El-Siblani is expected to testify that since the three-dimensional information for the brightness intensity values is provided individually for each voxel (volume element), it is possible to increase the depth of curing for any individual voxel beyond the maximum voxel depth by assigning a grayscale value of 255 to one or more voxel volumes and then increasing the exposure time for specific voxel volumes to increase the depth of cure beyond a maximum voxel depth.

As set forth in paragraph 60 in his December 18, 2008 declaration, Mr. El-Siblani is expected to testify that while it is possible to have two voxels assigned the same grayscale value, it is not possible in the Perfactory and Vanquish machines that are sold in the United States to have a uniform brightness distribution of the light that is being projected onto the surface of the DLP chip and then reflected and that even when the part is a solid, the Perfactory and Vanquish software modifies the voxels depending on geometry to reduce the internal stresses caused by material shrinkage when the material for each voxel is solidified.

Mr. El-Siblani is expected to testify that a collimated beam light source is does not in any

way compare to the DLP technology where the pixel intensity is individually and independently controlled by the grayscale value. Mr. El-Siblani is further expected to testify that in the Perfactory and Vanquish machines, the depth of cure is not only controlled on a voxel by voxel basis by the grayscale value of each voxel but it is also controlled by applying multiple exposures and that multiple exposures are used in certain instances on a voxel by voxel basis to compensate for an area where the energy provided to that area by a single exposure is not sufficient to generate the solidification that is necessary for that small area. Mr. El-Siblani is expected to testify that the ability to control the depth of cure on a voxel by voxel basis and by applying, where necessary, multiple exposures, means that the data information is not provided as a "layer" nor does the information represent adjacent layers.

Mr. El-Siblani is expected to testify about 3D Systems' definition of "stereolithography" as a method and apparatus for making solid objects by successively "printing" thin layers of a curable material, e.g., a UV curable material, one on top of the other, such that a programmable movable spot beam of UV light shining on a surface or layer of UV curable liquid is used to form a solid cross-section of the object at the surface of the liquid. Mr. El-Siblani is expected to testify that the object is then moved, in a programmed manner, away from the liquid surface by the thickness of one layer, and the next cross-section is then formed and adhered to the immediately preceding layer defining the object. Mr. El-Siblani is expected to testify that this process is controlled until the entire object is formed. Mr. El-Siblani is expected to testify that in the Perfactory and Vanquish machines sold in the United States, the entire build volume, including each of the subdivided voxels (volume elements), is rasterized into a volumetric model which contains individual and unique brightness intensity values for each of the voxels in the entire build platform and that the unique and individual brightness intensity values for each of

the voxels are set before any building takes place. Mr. El-Siblani is expected to testify that by using the voxelization process, there are no adjacent cross-sectional layers and the voxelization process does not provide data representing adjacent cross-sectional layers because there is only one individual intensity value for each voxel and each voxel (volume element) has a different intensity value.

Mr. El-Siblani is also expected to testify that the build volume and voxelization process that is used in the Perfactory and Vanquish machines do not provide "data representing adjacent cross sectional layers of the three dimensional object to be formed which was generated on CAD system". Mr. El-Siblani is also expected to testify that there is no "data representing adjacent cross sectional layers" used in the voxelization process for the Perfactory and Vanquish machines.

Mr. El-Siblani is also expected to testify about prior admissions made by 3D Systems that that "voxels" are not the same as layers, as set forth in his previously filed declaration of December 18, 2008. More specifically, Mr. El-Siblani is expected to testify that in a previous lawsuit involving several 3D Systems patents including the '537 patents, 3D Systems argued that one of their patents "describes a system in which objects are represented by 'voxels' (a voxel is the three-dimensional equivalent of a television pixel), rather than the surface data [two-dimensional] used and claimed in the 3D patent."

Mr. El-Siblani is also expected to testify that in the file history for another of 3D Systems' patents, 3D Systems distinguished voxelization from its patents as follows:

> Applicant also wishes to bring European Patent Application 87304865.6, applied for by Scitex Corporation Ltd., and published December 23, 1987, to the Examiner's attention. A copy of this reference is enclosed along with a Form PTO-1449 listing this reference. Applicant respectfully submits that the claims are patentably distinct over Scitex, since Scitex employs conversion of CAD/CAM data into defined data points which translate into cubic voxels. Scitex

> as well does not teach or disclose the conversion of CAD/CAM data at intersections with planes corresponding to slicing layers. (emphasis added) (Exhibit 2)

Mr. El-Siblani is also expected to testify that the Perfactory machine has a shutter, but that the Vanquish machine does not such that in the Vanquish machine, there is continuous exposure during the continuous movement of the platform. Mr. El-Siblani is also expected to testify about the prior admissions made by 3D Systems concerning "slices;" i.e., that the 3D Systems approach "slices" the data describing the three-dimensional object to be built for the purpose of producing data describing cross-sections. Mr. El-Siblani is also expected to testify that data is then used to direct a light source to form a layer, and thereafter, the partial object is lowered beneath the liquid surface and the process repeats itself using data from the next higher cross-sectional slice.

Mr. El-Siblani is also expected to testify that if the Perfactory Software Suite for the accused machines produced "sliced" data describing cross-sections, it would only be capable of building parts in a shutter system. Mr. El-Siblani is also expected to testify that since the voxel matrix used in the accused Perfactory and Vanquish machines is comprised of three-dimensional data points containing the x, y, and z coordinates as well as individual grayscale values, the data for each DLP mirror is obtained from the corresponding three-dimensional voxel data at a distinct time such that no two mirrors receive the voxel data at the same time. As such, the accused Perfactory and Vanquish machines do not build objects using sliced data describing cross-sections, which would necessarily require a shutter system for allowing the process to repeat itself using data from the next higher cross-sectional slice.

Should Plaintiff be permitted to rely upon or provide testimony about Perfactory and Vanquish machines sold outside of the U.S. (i.e., Europe and Asia) as well as document from the

predecessor company Envision Technologies that Mr. Siblani purchased, as set forth in Mr. El-Siblani's December 18, 2008 declaration in paragraphs 22-25, 35 (including sub-paragraphs thereto), 38 (including sub-paragraphs thereto), 39, and 52 (including sub-paragraphs thereto), Mr. El-Siblani is also expected to testify about the background of why these documents were produced during discovery and why these documents do not accurately reflect the functionality or operation of the accused U.S. Perfactory and Vanquish devices. Such testimony address why earlier product manuals of Envisiontec GmbH mention the words "slice" or "layers," (i.e, that Envisiontec GmbH's use of the words resulted because those terms had been established in the industry by 3D Systems and others, and others working in the industry at that time could not understand the terms voxel, voxel volume, voxelization, or DLP projection, and that Envisiontec did not have the financial resources to educate the industry regarding the terminology that actually applied to Defendants' technology). Mr. El-Siblani is also expected to testify that Envisiontec's financial resources have been so limited that they cannot even police what others say about Envisiontec's technology. However, Mr. El-Siblani is also expected to testify that Defendants do not "slice" or create "layers" as those terms have been established in the industry.

As set forth in paragraph 35 (including subparagraphs) of his December 18, 2008 declaration, Mr. El-Siblani is also expected to testify that only STL files are usable with the accused devices in the U.S. and that SLC or CLI files cannot be used. As set forth in paragraph 37 of his December 18, 2008 declaration, Mr. El-Siblani is also expected to testify that a CAD file is not the same as an STL file and that an STL file is an approximation of the geometric data and once generated, it is not possible to go back from an STL file to a CAD file and produce the original CAD data if you want to make changes to the original design. I Mr. El-Siblani is also expected to testify that it necessary to have a CAD translator to generate the STL file from the

CAD data because a CAD computer does not exist in either the Perfactory or Vanquish machines.

Should Plaintiff be permitted to rely upon or provide testimony about Defendants' Tutorial dated July 24, 2006, as set forth in forth in Mr. El-Siblani's December 18, 2008 declaration in paragraph 29, Mr. El-Siblani is also expected to testify about why European and Asian models were illustrated, rather than U.S. models.

As set forth in paragraphs 26-27 of his December 18, 2008 declaration, Mr. El-Siblani is also expected to testify about Envisiontec's customers' data practice in Europe and Asia.

As set forth in paragraph 28 of his December 18, 2008 declaration, Mr. El-Siblani is also expected to testify about documents that illustrate that the Vanquish machine provides a "continuous layerless Z-build" "eliminates the part layering that is visible in other competing layer based Rapid Prototyping technologies."

As set forth in paragraph 69 of his December 18, 2008 declaration, Mr. El-Siblani is also expected to testify that "providing data representing adjacent cross sectional layers of the three-dimensional object to be formed" refers to curing cross-sections of an object from a slice file, and the Perfactory and Vanquish machines use a build volume and voxelization process where the light intensity is varied on a voxel-by-voxel basis thereby providing a unique curing depth for each location across the surface of the resin. Mr. El-Siblani is also expected to testify that the Perfactory and Vanquish machines use a build approach and technology that is completely different from the use of slice files and layers.

As set forth in paragraph 72 (including sub-paragraphs thereto), Mr. El-Siblani is also expected to testify that the Perfactory machines do not form a uniform coating of a desired layer thickness over a previously formed layer of the object, but that fresh resin flows under a

previously formed section of the object. As set forth in paragraphs 42-46, 72, and 75 (including sub-paragraphs thereto) of his December 18, 2008 declaration, Mr. El-Siblani is also expected to testify that the Perfactory machines do not include an applicator, a winged blade, or any structure that smoothes the resin. Mr. El-Siblani is also expected to testify that the Perfactory machines also do not include a vacuum pump.

As set forth in paragraph 45-46, 51, and 72 of his December 18, 2008 declaration and as set forth in his July 16, 2010 declaration, Mr. El-Siblani is also expected to testify that in the Vanquish machines, the build platform moves continuously downward during the build process rather than in discrete steps. Mr. El-Siblani is also expected to testify that the light for the DLP projector is always on. Mr. El-Siblani is also expected to testify that the Vanquish machines have a cooling element with a dual belt drive that differs substantially from a motor driven threaded drive shaft and that the flexibility of the belts allows them to absorb vibrational energy whereas a motor driven threaded shaft transmits motor vibration to the resin or build platform. Mr. El-Siblani is also expected to testify that the Vanquish machines do not include a vacuum pump or an applicator, but instead include a movable cooling element and gravity feed.

As set forth in paragraph 43 of his December 18, 2008 declaration and as set forth in his July 16, 2010 declaration, Mr. El-Siblani is also expected to testify that the movement of the cooling element in the Vanquish machine is intermittent and is done when the continuous exposure of the resin surface generates a substantial amount of heat. Mr. El-Siblani is also expected to testify that the cooling element in the Vanquish machine is also spaced from the resin surface and the compressor that is connected to the cooling element does not draw resin into the cooling element to be later dispensed. As set forth in paragraph 71 of his December 18, 2008 declaration and in his July 16, 2010 declaration, Mr. El-Siblani is also expected to testify

that a large amount of heat is generated during the exothermic reaction from curing since, in fact, the build platform for the Vanquish is moving continuously downward and the light source for the DLP projector is always on.

As set forth in his July 16, 2010 declaration, Mr. El-Siblani is also expected to testify about the operation of the volume compensator and how the volume compensator serves to displace uncured resin over the top cured resin, as the build platform moves continuously downward.

Should Plaintiff be permitted to offer testimony or other evidence concerning the manipulated operation of the Vanquish device by Thomas Gogoe, as set forth in his July 16, 2010 declaration, Mr. El-Siblani is expected to testify concerning why the operation of the Synergeering device does not reflect a normal operation of the Vanquish device. Mr. El-Siblani is also expected to testify concerning the circumstances regarding Mr. Gogoe's animosity towards Defendants, as well as Mr. Gogoe's attempt to blackmail Defendants.

As set forth in paragraph 72 (including sub-paragraphs thereto) of his December 18, 2008 declaration, Mr. El-Siblani is also expected to testify how neither the Perfactory or Vanquish machines are capable of generating layers, as he had parts built using the Perfactory/Vanquish voxelization process and the same parts built using the 3D Systems process. He is also expected to testify concerning micrographs showing the resultant parts from the two processes and how the Perfactory/Vanquish voxelization process does not generate layers whereas the 3D Systems process does generate layers.

Mr. El-Siblani is also expected to testify about his familiarity with certain other rapid prototyping systems which apply radiation by drawing a radiation pattern across a resin and how the DLP projector used in the Perfactory and Vanquish machines does not use a drawing process,

but rather, applies light to each location to be cured. Mr. El-Siblani is also expected to testify that the use of a DLP projector to cure a resin differs substantially from processes that apply light by drawing as with drawing processes, the light source sequentially traverses each location to be cured across the resin surface and in contrast, the DLP technique projects light to each mirror which is movable to project the light to a unique voxel location on the resin surface. Mr. El-Siblani is also expected to testify that the DLP process is faster and more efficient than processes that draw upon a two-dimensional surface and systems that use a UV (ultraviolet) or electric beam must "draw" a pattern on the resin.

Mr. El-Siblani is also expected to testify about his familiarity with systems that use a spray and mask system and how a spray and mask technique differs substantially from rapid prototyping systems that apply radiation by means of a drawing process because they require the use of chemicals and some means for generating and exchanging the masks used to generate each layer of the object. Mr. El-Siblani is also expected to testify that the spay and mask techniques do not lend themselves to automation and lack the speed and efficiency of a DLP system and the lack of any non-light radiation source that can be delivered with a unique intensity to individual voxel volumes such that non-light radiation sources also differ substantially from the DLP projector system.

Mr. El-Siblani is also expected to provide testimony concerning the foundation of the demonstrative exhibits.

Mr. El-Siblani is also expected to provide testimony concerning Abe Reicenthal's demand that Envisiontec license Envisiontec's intellectual property to 3D Systems.

Defendants also reserve the right to submit rebuttal testimony from Mr. El-Siblani based on the nature and extent of the evidence and testimony offered by Plaintiffs at trial. However,

Defendants state that such testimony shall be consistent with his prior declarations dated December 18, 2008 and July 16, 2010 filed with this Court.

2. **Alexandr Shkolnik**
Engineer, Defendant Envisiontec, Inc.
1100 Hilton Street
Ferndale, MI 48220

Summary of Mr. Shkolnik's testimony:

Alexandr Shkolnik is expected to testify about his 10+years of experience in the rapid prototyping industry, as well as his educational background. He is further expected to testify about his job responsibilities as an engineer for Defendant Envisiontec, Inc.

Mr. Shkolnik is also expected to testify that he began collaborating with Mr. Al Siblani regarding the development of a "continuous build" rapid prototyping device as an alternative to rapid prototyping devices that use a layering approach. Mr. Shkolnik is also expected to testify that this device was eventually commercialized under the name "Vanquish." Mr. Shkolnik is also expected to testify that there are several Vanquish devices, including the Vanquish+ Perfactory^3 System, the Vanquish Flash Cure System, and the Vanquish+ Perfactory^3 ERM System. He is also expected to testify that the Vanquish devices were recently re-named to "PerfactoryXtreme."

Mr. Shkolnik is also expected to testify that he contributed to and is familiar with numerous aspects of the design of the Vanquish devices, including the mechanical design, optics, firmware, and software. He is also expected to testify that he has operated the Vanquish devices or witnessed their operation on numerous occasions.

Mr. Shkolnik is also expected to testify that the Vanquish devices, just like the Perfactory devices, create a solid model of an object based on a STL file. Mr. Shkolnik is also expected to testify that the solid model is formed from a photopolymer which is also known as a curable resin. Mr. Shkolnik is also expected to testify that the photopolymer is a viscous liquid that

solidifies when light is applied to it and that this process of solidifying the resin is generally referred to as "curing."

Mr. Shkolnik is also expected to testify that each of the Vanquish devices includes a frame that houses a resin tank, a build platform, a digital light projector ("DLP"), and a pre-processing computer. Mr. Shkolnik is also expected to testify that the DLP projector contains an array of mirrors, each one of which is movable. Mr. Shkolnik is also expected to testify that the movement of each mirror dictates the intensity of light projected from it and that each mirror projects a unique light intensity to a location on the surface of the curable resin. Mr. Shkolnik is also expected to testify that the light intensity and the length of time for which it is applied determine the depth to which the resin is cured. Mr. Shkolnik is also expected to testify that as a result, the DLP projector provides a unique curing depth for each location (also known as voxel location) across the surface of the resin. Mr. Shkolnik is also expected to testify that the DLP projector does not draw with a laser beam or other radiation as is disclosed in the patents in suit. Mr. Shkolnik is also expected to testify that the DLP projector does not use a beam of UV (ultraviolet) light or an electric beam. Mr. Shkolnik is also expected to testify that the DLP projector also does not use a spray, film, or mask.

Mr. Shkolnik is also expected to testify that the build platform of the Vanquish devices is mounted on a vertical support and moves continuously downward during the build process without stopping. Mr. Shkolnik is also expected to testify that the light that is used with the DLP projector is always on. Mr. Shkolnik is also expected to testify that each mirror of the DLP projects light at the surface of the resin, causing it to cure at the defined voxel location based on the particular DLP mirror to which it corresponds. Mr. Shkolnik is also expected to testify that as the Vanquish build platform moves downward, the previously cured resin also moves

downward allowing uncured resin to flow over it. Mr. Shkolnik is also expected to testify that the Vanquish machine includes a volume compensator that displaces the uncured resin over the previously cured resin. Mr. Shkolnik is also expected to testify that a cooling blade moves across the upper surface of the resin because of the large amount of heat that is generated. Mr. Shkolnik is also expected to provide an overview of the "continuous build" process that is used in the Vanquish machines and provide foundation testimony concerning demonstrative exhibits.

Mr. Shkolnik is also expected to testify that the Vanquish devices do not form layers or uniform coatings of desired layer thickness over a previously formed layer, but instead, the solid object that is manufactured is a collection of three-dimensional voxel volumes, where each voxel volume has its own z-dimension that is being formed during continuous motion. Mr. Shkolnik is also expected to testify that the voxelization process that is used in the Vanquish devices in combination with the continuous motion downward and the DLP projector light always being on, makes it impossible to form "layers" or "cross sectional layers". Mr. Shkolnik is also expected to testify that as the build platform moves downward in the Vanquish device, fresh resin flows over previously solidified resin such that there is neither a smooth surface nor a single thickness for the solidified resin. Mr. Shkolnik is also expected to testify that the volume compensator in the Vanquish machines displaces the uncured (or fresh) resin over the previously solidified resin.

Mr. Shkolnik is also expected to testify that it is not possible to create a layer, a smooth or level surface, or a single thickness area in the cured resin as the build platform is moving continuously downward. More specifically, Mr. Shkolnik is expected to testify that the DLP projector light is continuously on and the build platform is continuously moving downward and with this type of system, it is not possible to create layers or a smooth level surface because of the continuous motion of the build platform and the continuous movement of the resin. Mr.

Shkolnik is also expected to testify that since the voxel volumes contain information about the z-dimension which is unique for each voxel, with individual voxel intensities for depth that can be above and below the maximum voxel depth, it is not possible to generate layers or cross-sectional layers using the voxelization process.

Mr. Shkolnik is also expected to testify that the Perfactory and Vanquish software creates a three-dimensional build envelope or volume which is subdivided into the voxel volume elements and that after the intersection between each voxel volume and the three-dimensional part to be manufactured is determined, the intersection amount, if any, is converted into a brightness intensity value that is unique for each voxel and independent of any other voxel. Mr. Shkolnik is also expected to testify that the brightness intensity values, or grayscale values, are used to create a bitmap stack for the entire build volume of the part to be manufactured before any exposure takes place, and thus, the creation of a three-dimensional build volume and the use of a voxelization process before manufacturing the part is completely different than "providing data representing adjacent cross sectional layers of the three dimensional object to be formed which was generated on CAD system". Mr. Shkolnik is also expected to testify that the Perfactory and Vanquish devices do not provide data representing adjacent cross sectional layers of an object and that the voxelization process varies light intensity on a voxel-by-voxel basis when the light intensity for one voxel is independent of any other voxel.

Mr. Shkolnik is also expected to testify about rapid prototyping systems that use a layered process, like that disclosed in the patents in suit, in which fresh resin is supplied as a uniform coating with a desired layer thickness. Mr. Shkolnik is also expected to testify that providing data representing adjacent cross sectional layers of the three dimensional object to be

formed refers to curing cross-sections of an object from a slice file, which requires that the resin be cured with an irradiance that does not vary across the surface of the resin.

Mr. Shkolnik is also expected to testify that in the Perfactory and Vanquish machines, the light intensity is varied on a voxel-by-voxel basis for providing a unique curing depth for each location across the surface of the resin. Further, Mr. Shkolnik is also expected to testify that in the Vanquish machine, the use of a continuous build process prevents any formation of discrete layers, and therefore, differs substantially from the process disclosed in the patents in suit. Indeed, Mr. Shkolnik is also expected to testify that the continuous build process used in the Vanquish avoids the formation of visible lines separating adjacent layers and that layered processes involve stopping the build platform to allow uncured resin to flow over previously cured sections. Mr. Shkolnik is also expected to testify that when the platform starts moving, it must overcome a threshold viscous resistance of the curable resin, which can distort or break previously cured sections. Mr. Shkolnik is also expected to testify that the continuous build process used in the Vanquish avoids this problem because the build platform never stops moving.

Mr. Shkolnik is also expected to testify about the animation that he prepared illustrating the continuous build process used in the Vanquish machine, as well as provide foundation testimony for Defendants' demonstrative exhibits.

Mr. Shkolnik is also expected to testify that as the Vanquish build platform moves downward, a cooling blade intermittently moves across the upper surface of the resin because of the large amount of heat that is generated. Mr. Shkolnik is also expected to testify that since the build platform is moving continuously downward, a substantial amount of heat is generated during the exothermic reaction of curing a specific resin based on the number of voxels, their

intensity, the material viscosity, and other factors. Mr. Shkolnik is also expected to testify about how the cooling blade is used in the Vanquish and how the cooling blade is connected to the Vanquish machine through corresponding flexible rubber belts on opposite ends of the cooling blade. Mr. Shkolnik is also expected to testify that the flexible rubber belts are driven by a rotating motor shaft and that as the motor shaft rotates, the cooling blade moves across the surface of the resin.

Mr. Shkolnik is also expected to testify that the cooling blade in the Vanquish machine is spaced from the resin surface and a compressor is connected to the cooling blade for assisting the cooling blade in drawing the large amount of heat from the resin surface. Mr. Shkolnik is also expected to testify that the movement of the cooling element is intermittent and occurs when the resin surface generates a substantial amount of heat.

Mr. Shkolnik is also expected to testify that the patents in suit depict a motor driven threaded shaft that drives the movement of a recoater blade and that a motor driven threaded shaft uses generally rigid components which transmit motor vibration to the resin or the build platform. Mr. Shkolnik is also expected to testify that motor vibration will disturb the curing process and result in deformities in the object being built. Mr. Shkolnik is also expected to testify that, in contrast, the Vanquish device includes dual flexible rubber belts that transmit the movement of the motor to the cooling blade and that the flexibility of the belts allows them to absorb vibrational energy and reduce the amount of vibration transmitted to the blade.

Mr. Shkolnik is also expected to testify that the Perfactory machines clearly do not include an applicator that applies or dispenses uncured resin and that the cooling element used in the Vanquish machines is not an applicator.

Mr. Shkolnik is also expected to testify that because the build platform for the Vanquish machines moves continuously downward, it does not form layers. Mr. Shkolnik is also expected to testify that the Perfactory machines also do not form layers of material "over" previously formed cross-sectional layers since fresh resin flows beneath previously solidified resin.

Mr. Shkolnik is also expected to testify that the Vanquish machine does not include a vacuum pump or an applicator; instead, it uses an intermittently movable cooling element and gravity feed from the continuous downward movement of the build platform.

Mr. Shkolnik is also expected to testify that a computer is required with a STL translator that is capable of reading CAD data and then translating it to a STL format. Mr. Shkolnik is also expected to testify that during the voxelization process, the STL file is converted into a three-dimensional format of individual voxel volumes before the building process takes place and why the Perfactory and Vanquish devices do not convert CAD models into "data representing adjacent cross sectional layers of the three dimensional object to be formed which was generated on CAD system," since a CAD file is not a STL file, and the software used for the Perfactory and Vanquish machines cannot generate the required STL file from CAD data. Mr. Shkolnik is also expected to testify that neither the Perfactory or Vanquish devices receive CAD data as an input and they do not generate CAD models nor do they include CAD generators.

Defendants also reserve the right to submit rebuttal testimony from Mr. Shkolnik based on the nature and extent of the evidence and testimony offered by Plaintiffs at trial. However, Defendants state that such testimony shall be consistent with his prior declaration dated July 29, 2008 filed with this Court.

3. Dr. Sebastian Magda

Director of Science and Engineering
CorTechs Labs, Inc.
San Diego, California

Summary of Dr. Magda's testimony:

Dr. Magda is expected to testify about his educational background and technical experience. Dr. Magda is also expected to provide expert testimony about his review of the software, including the relevant source code sections, for the Perfactory Software Suite, which includes a module called Perfactory RP.

Dr. Magda is also expected to provide expert testimony about the software that is used to operate the accused Perfactory and Vanquish machines. More specifically, Dr. Magda is expected to testify that the first step in the software is to allocate a build volume for storing a three-dimensional model because in the software, the build volume or build envelope has a fully three-dimensional representation.

Dr. Magda is expected to testify that the build volume is composed of elementary volume elements, which are also called voxels, as opposed to pixels (picture elements) used in two-dimensional representations.

Dr. Magda is expected to testify that the next step in the software is to determine the intersection between each voxel volume and the three-dimensional part model to be manufactured and that the amount of volume interference is calculated by using a triangle-to-volume projection method.

Dr. Magda is expected to testify that depending on the intersection amount between the part model and voxels in the build volume, a brightness intensity value is assigned independently

to each voxel. Dr. Magda is expected to testify that the intersection amount for each voxel is expressed over a range of grayscale values between 0 (not intersected) and 255 (fully enclosed).

Dr. Magda is expected to testify that before printing, the build volume is sampled along a selected print axis to generate bitmaps within the build volume, which can only then be later displayed by the projector on the resin surface.

Dr. Magda is expected to testify that since each voxel, which is the elementary volume data element with unique x,y,z coordinates, is three-dimensional rather than two-dimensional, the build volume can be printed along any arbitrary axis.

Dr. Magda is also expected to testify that each of the individual voxels is addressed to a specific mirror in a DLP projector used for printing and that each voxel uniquely dictates the intensity of the light projected from that mirror to the resin. Dr. Magda is also expected to testify that the exposure of the resin to light depends on the grayscale value that is assigned to each voxel.

Dr. Magda is expected to testify that the individual mirrors on the DLP projector are activated in a manner which depends on the grayscale value assigned to the corresponding voxel. When a mirror is activated, the percentage of time it is in an "on" position versus "off" position dictates the intensity of light projected on the resin surface and is different for each mirror because each mirror must be addressed independently with an individual grayscale value.

Dr. Magda is expected to testify that if a mirror is assigned a grayscale value of 255, it is "ON" and if a mirror is assigned a grayscale value of 0, it is "OFF". Dr. Magda is expected to testify that if the individually assigned grayscale value is between 0 and 255, the mirror vibrates between ON and OFF.

Dr. Magda is expected to testify that since the three-dimensional brightness intensity values is provided individually for each voxel (volume element), the software makes it possible to increase the standard depth of curing selectively for one or more specific voxels beyond the maximum depth by individually assigning them a grayscale value of 255 and then increasing the exposure time for these specific voxels.

Dr. Magda is expected to testify that it is possible to have any two voxels assigned the same grayscale value, but it is physically impossible for any two voxel values to have the same value on the surface of the DLP chip as it is physically impossible to have a perfectly uniform brightness distribution of the light on the surface of the DLP chip. Dr. Magda is expected to testify that the software also adjusts each voxel grayscale value depending on the model geometry to reduce the internal stresses caused by the material shrinkage when the material is solidified.

Dr. Magda is expected to testify that the depth of cure is not only controlled on a voxel-by-voxel basis by the grayscale value of each voxel but it is also controlled by applying multiple exposures. Multiple exposures on a voxel-by-voxel basis are used to compensate in areas where the amount of energy provided to that area by a single exposure is not sufficient to result in the solidification that is necessary.

Dr. Magda is expected to testify that the software for the accused Perfactory and Vanquish machines does not provide data representing adjacent cross-sectional layers of a three-dimensional object to be formed which was generated on a CAD system, but instead, the software provides a three-dimensional build volume composed of voxels (volume elements). Dr. Magda is expected to testify that this build volume is generated by determining whether there is an intersection between each voxel and the three-dimensional part model to be manufactured and

assigning a brightness intensity value to each voxel depending on the intersection amount independent of any other voxel. Dr. Magda is expected to testify that for printing, the build volume is sampled along a selected print axis to generate bitmaps within the build volume, before printing, which can only then be later displayed by the projector on the resin surface.

Dr. Magda is expected to testify that the software for the accused Perfactory and Vanquish machines also does not provide data representing adjacent cross-sectional layers since it is not possible to have a uniform brightness distribution of the light that is projected onto the surface of the DLP chip as the software adjusts voxel values depending on geometry to reduce internal stresses caused by the material shrinkage when the material for each voxel is solidified as well as to compensate for the artifacts due to the optics used. Dr. Magda is expected to testify that this means that the data information is not provided as a layer or cross-sectional layer nor does the information represent adjacent layers.

Dr. Magda is expected to testify that the software for the accused Perfactory and Vanquish machines controls the depth of curing on a voxel-by-voxel basis by adjusting the grayscale value of each voxel and also controls the depth of cure by applying multiple exposures to compensate for areas where the amount of energy is not sufficient to result in the solidification that is necessary and that this also means that the data information is not provided as a layer or cross-sectional layer nor does the information represent adjacent layers.

Dr. Magda is expected to testify that the software used for the accused Perfactory and Vanquish machines can only read STL files and in the Perfactory Software Suite that is used for the accused Perfactory and Vanquish machines, there is no build filter for reading sliced data or translator for translating CAD data to STL data. Dr. Magda is expected to testify that the machines in the United States only operate in response to STL files and cannot operate in

response to two-dimensional slice files such that a user cannot open a CLI or SLC file using the Perfactory Software Suite for the accused machines sold in the United States. Dr. Magda is expected to testify that if a user attempts to open a SLC or CLI file, an error message appears: "No plugin available which can read/write it!".

Defendants also reserve the right to submit rebuttal testimony from Dr. Magda based on the nature and extent of the evidence and testimony offered by Plaintiffs at trial. However, Defendants state that such testimony shall be consistent with his prior declaration dated July 29, 2008 filed with this Court.

4. Dr. Volker Schillen
(Formerly the Chief Technical Officer of Envisiontec GmbH)
Dr. Schillen currently resides in Germany – specific address unknown

Defendants proffer the December 18, 2008 declaration testimony of Dr. Volker Schillen. Dr. Schillen has not been an employee of any of the Defendants for approximately two years. As a German citizen (where he resides), he cannot testify in this case; and hence is unavailable for trial.

Plaintiff has had the opportunity to cross-examine Dr. Schillen and have not challenged any of Dr. Schillen's testimony set forth in his declaration on voxelization. In fact, Plaintiff has embraced the animation referred to in Dr. Schillen's declaration and have indicated its intention to introduce the animation as an exhibit at trial. Accordingly, Defendants intend to read the December 18, 2008 declaration of Dr. Schillen into record at trial and refer to documents and other evidence referenced therein.

In addition to the declaration testimony of Dr. Schillen, Defendants intend to present portions of Dr. Schillen's videotaped deposition testimony related to voxelization. A list of designations for Dr. Schillen's deposition testimony is as follows:

9:14-10:12

10:16-20

11:5-15

12:1-3

17:3-13

17:21-18:20

19:25-21:5

23:16-25:1

25:8:-26:19

37:6-38:3

80:4-9

84:1-89:4

90:13:92:20

94:15-95:4

96:3-97:9

103:1-108:11

112:7-12

113:5-25

138:21-23

176:20-177:15

184:15-20

Defendants reserve the right add additional designations to this list based on the nature of Plaintiffs' testimony at trial.

5. Dr. Paul F. Jacobs
20 Jacalyn Drive
Saunderstown, RI 02874

Defendants also proffer the July 16, 2008 and December 18, 2008 declaration testimony of Dr. Paul Jacobs. Dr. Jacobs is not an employee of any of the Defendants and resides outside of the subpoena power of this Court. Accordingly, he is unavailable for trial.

While Defendants are mindful the Court's prior ruling disqualifying Dr. Jacobs as an expert witness, Defendants respectfully object to this ruling and seek to introduce the declaration testimony identified above. Defendants further state that Plaintiff has had the opportunity to cross-examine Dr. Jacobs has chosen not to do so. Nor has Plaintiff disputed the statements made by Dr. Jacobs in his declaration.

B. Witnesses that Defendants May Call at Trial

1. Dr. Volker Schillen

To the extent that Dr. Schillen becomes available, Defendants may call Dr. Schillen to testify. Dr. Schillen's testimony will comport with his prior declaration testimony identified above.

2. Rebuttal Witnesses

As Plaintiff's summary of the nature of the testimony is broadly phrased and lacking in any specific detail, Defendants expressly reserve the right to call additional witnesses in rebuttal to any specific testimony introduced by the Plaintiff at trial.